AMENDMENT

This listing of claims will replace all prior versions, and listings, of claims in the

application:

Listing of Claims:

1. (Currently Amended)   A <u>computer-implemented</u> method of performing intelligent data

pre-staging for a job submitted to a compute environment, the method comprising:

determining availability of compute resources in a cluster or grid environment including

availability timeframes of the compute resources to process the submitted job;

determining data requirements for processing the job;

determining a co-allocation in time reservation <u>by:</u>

<u>(1)   requesting resources for a first step in the job process based on the determined</u>

<u>availability and/or the determined data requirements;</u>

<u>(2)   calculating existing resource guarantees and reservations already in place to create</u>

<u>an availability range list;</u>

<u>(3)   converting the availability range list into a start range list;</u>

<u>(4)   requesting another resource for a next step in the job process and returning to step</u>

<u>(2) until all resources for all steps in the job process are requested;</u>.

<u>(5)   shifting start ranges in the start range list by an offset and performing an</u>

<u>intersection operation on a combination start range;</u>

<u>(6)   shifting the start ranges back by a negative of the offset, wherein resulting</u>

<u>information provides when to start each reservation;</u>

<u>(7)   presenting to a user a final list of selectable starting times for a reservation; and</u>

<u>(8)   upon receiving a user selection of a reservation start time, establishing a co-</u>

<u>allocation in time reservation for resources for an appropriate start time; and</u>

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performing data pre-staging based on the co-allocation in time reservation and prior to

processing the job in the compute environment.

2. (Currently Amended)   The computer-implemented method of claim 1, wherein the data

requirements relate to a quantity of data and a speed of migration of the data to the compute

resources.

3. (Currently Amended)   The computer-implemented method of claim 1, wherein the data

requirement for processing the job are at least one of: network information, network speed,

faults, statistical fluctuation, delivered bandwidth by the network and size.

4. (Currently Amended)   The computer-implemented method of claim 1, wherein the

compute resources must be available prior to the completion of data pre-staging.

5. (Cancelled)

6. (Currently Amended)   The computer-implemented method of claim [[5]] 1, wherein the

range list indicates all the availability time frames.

7. (Currently Amended)   A system for performing intelligent data pre-staging for a job

submitted to a compute environment, the system comprising:

    a processor;

a module configured to control the processor to determine availability of compute

resources in a cluster or grid environment including availability timeframes to process the

submitted job;

a module configured to control the processor to determine data requirements for

processing the job;

a module configured to determine a co-allocation in time reservation, the module

determining the co-allocation in time reservation by:

(1)   requesting resources for a first step in the job process based on the

determined availability and/or the determined data requirements;

(2)   calculating existing resource guarantees and reservations already in place

to create an availability range list;

(3)   converting the availability range list into a start range list;

(4)   requesting another resource for a next step in the job process and returning

to step (2) until all resources for all steps in the job process are requested;.

(5)   shifting start ranges in the start range list by an offset and performing an

intersection operation on a combination start range;

(6)   shifting the start ranges back by a negative of the offset, wherein resulting

information provides when to start each reservation;

(7)   presenting to a user a final list of selectable starting times for a

reservation; and

(8)   upon receiving a user selection of a reservation start time, establishing a

co-allocation in time reservation for resources for an appropriate start time; and

a module configured to control the processor to perform data pre-staging based on the co-

allocation in time reservation and prior to processing the job in the compute environment.

8. (Original)   The system of claim 7, wherein the data requirements relate to a quantity of data and a speed of migration of the data to the compute resources.

9. (Previously Presented)   The system of claim 7, wherein the data requirement for processing the job are at least one of: network information, network speed, faults, statistical fluctuation, delivered bandwidth by the network and size.

10. (Previously Presented)   The system of claim 7, wherein the compute resources must be available prior to the completion of data pre-staging.

11. (Cancelled)

12. (Currently Amended)   The system of claim [[11]] 7, wherein the range list indicates all the availability time frames.

13. (Currently Amended)   A computer-readable medium containing instructions for controlling a computing device to perform intelligent data pre-staging for a job submitted to a compute environment, the instructions comprising:

    determining availability of compute resources in a cluster or grid environment including availability timeframes of the compute resources to process the submitted job;

    determining data requirements for processing the job;

    determining a co-allocation in time reservation by:

(1)   requesting resources for a first step in the job process based on the

determined availability and/or the determined data requirements;

(2)   calculating existing resource guarantees and reservations already in place

to create an availability range list;

(3)   converting the availability range list into a start range list;

(4)   requesting another resource for a next step in the job process and returning

to step (2) until all resources for all steps in the job process are requested;.

(5)   shifting start ranges in the start range list by an offset and performing an

intersection operation on a combination start range;

(6)   shifting the start ranges back by a negative of the offset, wherein resulting

information provides when to start each reservation;

(7)   presenting to a user a final list of selectable starting times for a

reservation; and

(8)   upon receiving a user selection of a reservation start time, establishing a

co-allocation in time reservation for resources for an appropriate start time; and

performing data pre-staging based on the co-allocation in time reservation and prior to

processing the job in the compute environment.

14. (Original) The computer-readable medium of claim 13, wherein the data requirements relate

to a quantity of data and a speed of migration of the data to the compute resources.

15. (Previously Presented)   The computer-readable medium of claim 13, wherein the data

requirement for processing the job are at least one of: network information, network speed,

faults, statistical fluctuation, delivered bandwidth by the network and size.

16. (Previously Presented)   The computer-readable medium of claim 13, wherein the compute resources must be available prior to the completion of data pre-staging.

17. (Cancelled)

18. (Currently Amended)   The computer-readable medium of claim [[17]] 13, wherein the range list indicates all the availability time frames.